

# LIMS in the Mining Industry: Increasing production at Kennecott Utah Copper Corp.



## LIMS a core component of the company information system

Kennecott Utah Copper Corp. (KUCC) of Salt Lake City, Utah, has been a long time LABWORKS™ customer, providing timely results to their process facility and quality data to its environmental program. Kennecott operates the largest open pit copper mine in the world. The mine is so big, it can be seen by the space shuttle astronauts as they pass over the United States! The company produces over 300,000 tons of refined copper per year in addition to significant quantities

of Gold, Silver and Molybdenum. Kennecott's Bingham Canyon Mine has produced more copper than any mine in history -- about 17 million tons.

"About 75% of the samples received each day by the process laboratory must be reported in less than 8 hours," said Wade Okelberry, Laboratory Supervisor for Kennecott. On the environmental side, the laboratory facility produces quality data on thousands of monitoring wells, as well as industrial hygiene samples to help meet employee health and safety regulations.

## Key Benefits

- ▶ Automated login, workload, and instrument results
- ▶ Robust quality assurance to support environmental and industrial hygiene programs
- ▶ Deliver lab data via LABWORKS Explorer to reduce phone inquiries to lab
- ▶ Integration with company information systems to enhance decision making

## An invaluable tool in its production system

The process laboratory receives almost 8,000 samples per month. In order to meet this high volume demand without increasing personnel, the process lab has utilized many LABWORKS features to reduce, or eliminate in many cases, manual and redundant data entry. Hundreds of samples are logged in each day in a relative small amount of time by utilizing the LABWORKS Multi-sample Login Pre-Login group feature. When a batch of samples arrive, the lab tech simply loads the pre-defined group of samples into the login spreadsheet, fills with increment unique field ID's, and generates barcoded sample labels.

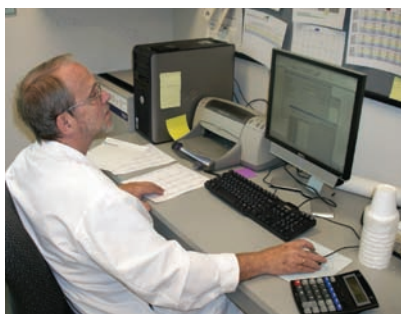
Lab techs perform backlog searches to identify samples to be analyzed and create electronic files for sharing with laboratory instruments and bench worksheets to eliminate manual keyboard entry and transcription. This increases productivity by eliminating time to write or type sample ID's and increases quality by greatly reducing the potential for human transcription errors.

Once the results are quantified, the lab tech generates an electronic report in a standard LABWORKS instrument interface format to populate the LIMS. Once again, increasing laboratory productivity and data quality.

Hundreds of internal customers, some frequent users and others casual users of laboratory data, access laboratory information using the LABWORKS Explorer in a read-only and secure manner. "Since the LABWORKS Explorer was implemented, the number of phone inquiries to the lab has been signifi-



Figure 1: This spreadsheet ...benefits



cantly reduced, thus allowing the lab managers and technicians to focus on producing new data rather than responding to sample status inquiries or searching for historical data," Okelberry said.

## A cornerstone to its environmental program

The environmental lab uses LABWORKS to help manage its

extensive ground water monitoring and industrial hygiene programs. In addition to the features and benefits outlined above (automated login, barcoding, electronic worksheets and instrument interfacing, data distribution), the environmental lab uses LABWORKS to control and secure access to sample and result information, perform quality control batching and reporting, electronically record instrument

maintenance and calibration logs, electronically record personnel training and certification, and manage nearly all of its industrial hygiene program data. This greatly reduces the amount of time spent compiling regulatory reports and producing information during regulatory visits. It also helps Kennecott meet its environmental stewardship commitments.

### Distribute information outside lab walls

“Kennecott has implemented many interfaces between LIMS and other company information systems including process data shared with PI, industrial hygiene data shared with MEDGATE, and numerous internal browser based reports through secure and robust access to the LABWORKS database,” Okelberry said. Work is currently being done to interface between LABWORKS and SAP for sales related information. The ability to electronically share lab data with company information systems not only saves time and money, but provides better information to make decisions that influence the operations and management of its thriving business.

Analysis Code	Analyte	Result	Units	Violation/Validation
AL203	Al2O3	4.0000	%	
AS	As	0.019	%	Upper Warn (2.0)
AU_IAT	AU I AT	0.0018	OPT	
CAO	CaO	0.45	%	
CU	Cu	0.112	%	
FE	Fe	1.88	%	
MGO	MgO	1.92	%	
MOS2	MoS2	0.013	%	
PB	Pb	0.004	%	Lower Warn (0.005)
S	S	0.7000	%	
SI02	SiO2	85.300	%	Upper Warn (18.0)

Sample No : AR02350 / MBL: Mine Blastholes      Collection Date: 5/29/2007      9:02 AM

The screenshot displays the 'LABWORKS LIMS Process Scheduler' window. The main area is a table with columns: Sample ID, Description, Priority, Status, Department, LIMS Sample ID, Analysis, Login record No., Violation, Comment, Sample Type, Request Fee, and Login Fee. The rows are color-coded: green for 'Ready to Collect', yellow for 'Waiting Validation', and red for 'Ready to Collect' (with a red background). The table lists various samples such as 'AD 001', 'AD 002', 'AD 003', etc., with their respective analysis types and fees.

Figure 3: The Process Scheduler allows analyst to easily identify sample status with a color-coded screen.

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